

**AMENDMENTS TO THE CLAIMS WITH MARKINGS TO SHOW CHANGES
MADE, AND LISTING OF ALL CLAIMS WITH PROPER IDENTIFIERS**

1-7. (Cancelled)

8. (Previously presented) The DNA expression construct according to claim 22, said construct comprising covalently closed linear deoxyribonucleotide molecules comprising a linear double stranded region, wherein ends of the double stranded region are linked to short single stranded loops consisting of deoxyribonucleotides, said double strand forming single strands consisting only of encoding sequences under the control of the promoter and the terminator sequence operable in an animal to be vaccinated.

9. (Previously presented) The DNA expression construct according to claim 22, wherein the expression construct is covalently linked to one or more peptides.

10. (Previously presented) The DNA expression construct according to claim 9, wherein the peptide is composed of 30 amino acids, at least half of which are a member of the group consisting of arginine and lysine.

11. (Previously presented) The DNA expression construct according to claim 9, wherein the one peptide comprises SEQ ID NO 41.

12.-21. (Canceled)

22. (Currently amended) A DNA expression construct for the expression of proteins in the Feline Leucosis virus in cat cells comprising:

a promoter sequence operable in Felidae and at least one Feline Leucosis virus nucleotide sequence which is mutated as compared to a wild type Feline Leucosis virus nucleotide sequence, wherein said mutated nucleotide sequence encodes ~~at least~~ one of a structure protein "gag" and or a membrane protein

"env", which comprises codons optimized for gene expression in Felidae and contains no splice donor or acceptor sequences, wherein said mutated nucleotide sequence encodes a protein ~~and~~ as set forth in at least one selected from the group consisting of SEQ ID NO 5, SEQ ID NO 7 or and SEQ ID NO 8[.]; and a termination sequence.

23. (Currently amended) An isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown set forth in SEQ ID NO: 5.

24. (Cancelled).

25. (Currently amended) An isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown set forth in SEQ ID NO: 7.

26. (Cancelled)

27. (Currently amended) An isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown set forth in SEQ ID NO: 8.

28. (Cancelled)

29. (Currently amended) The DNA expression construct of claim 22 comprising: an isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown set forth in SEQ ID NO: 5.

30. (Currently amended) A DNA expression construct comprising: an isolated nucleic acid molecule or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown set forth in SEQ ID NO: 5; wherein the expression of the construct in cat cells provides protection from Feline Leucosis virus infection.

31. (Currently amended) The DNA expression construct of claim 22, comprising: an isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown set forth in SEQ ID NO: 7.
32. (Currently amended) A DNA expression construct comprising: an isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown set forth in SEQ ID NO: 7; wherein the expression of the construct in cat cells provides protection from Feline Leucosis virus infection.
33. (Currently amended) The DNA expression construct of claim 22, comprising: an isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown set forth in SEQ ID NO: 8.
34. (Currently amended) A DNA expression construct comprising: an isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence shown set forth in SEQ ID NO: 8; wherein the expression of the construct in cat cells provides protection from Feline Leucosis virus infection.
35. (Previously presented) The DNA expression construct according to claim 29, further comprising a covalently closed linear deoxyribonucleotide molecule comprising a linear double stranded region, a short single stranded loop consisting of deoxyribonucleotides, a promoter that is operable in animal that is to be vaccinated, and a terminator sequence.
36. (Currently amended)) The isolated nucleic acid of claim 23, wherein the "gag" coding sequence is amplified by primers selected from the group consisting of SEQ ID NOS 36, 37, 38, 39 and 40 which selectively hybridize to the same sequence of SEQ ID No. 5.

38 37. (Currently amended) The isolated nucleic acid of claim 25, wherein the 'env-gp85" coding sequence is amplified by primers which selectively hybridize to the same sequence of SEQ ID No. 7.

39 38. (Currently amended) The isolated nucleic acid of claim 27, wherein the 'env-gp70" coding sequence is amplified by primers which selectively hybridize to the same sequence of SEQ ID No. 8.

39. (New) A pharmaceutical composition for use as a vaccine in cats comprising a DNA expression construct according to claim 22, and a pharmaceutically effective carrier.

40. (New) The DNA expression construct of claim 8 comprising: a promoter sequence operable in Felidae and at least one Feline Leucosis mutated virus nucleotide sequence, wherein the mutated nucleic acid comprises the sequence that encodes a protein set forth in one of the group consisting of SEQ ID NO: 5, SEQ ID NO: 7 and SEQ ID NO: 8; and a termination sequence.